A Work Project, presented as part of the requirements for the Award of a Master's Degree in Management from the NOVA – School of Business and Economics.

WHY SHOULD THE CASH AND CARRY DISTRIBUTION MODEL BE REENGINEERED? THE CAE STUDY OF RECHEIO CASH AND CARRY

Miguel Duarte Ferreira

Masters student number #18633

A project carried out on the Masters in Management Program at Jerónimo Martins, under the supervision of:

Professor José Crespo de Carvalho and Dr. André Costa Duarte

24th JANUARY, 2017

Contents

2. Acknowledgements

First of all, I am very grateful to José Crespo de Carvalho, my professor and work project advisor, for all his availability and useful help, providing feedback every time I needed.

I would also like to thank Dr. André Costa Duarte, Dr. José Vieira and all Recheio's team, especially to the project team, for the support, mentoring and availability. Thank you all for this incredible experience at Recheio Cash and Carry.

A special thanks to Pureza Mendes de Almeida, Pedro Carvalho, and Francisco Pinto Coelho for their motivation and support through the writing phase.

Finally, I have to thank my family and friends to all the support during my academic life, especially during the writing period of this work project.

"*There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things."*

Nicolo Machiavelli (1469-1527)

3. Introduction

The Cash and Carry format, also known as self-service wholesaler store, is a **wholesaler format specifically for trade customers**. Customers must prove they own or represent a registered business in order to be allowed to shop in Cash and Carry (C&C) stores (Euromonitor International, 2010).

The C&C customer base is made up of three main groups: the hospitality trades, **HoReCa** which are Hotels, Restaurants and Caterers; **Small Traders**, independent retail stores without own supply chain; and **SCOs** represented by Services, Companies and Offices.

This B2B business is believed to have been invented in 1958 in the UK. Its classical format, as the name suggests, consisted in a warehouse (C&C Store) where clients would pick their products, pay in cash and carry them home. Slight changes occurred as the retail business evolved, for example, it is no longer required a cash payment, many stores use electronic transactions and some even allow credit cards. These adjustments represent C&C's adaptation to changing market conditions and intense competition they have been facing.

The main C&C formats (APPENDIX A) are now facing competition from Delivered Wholesalers, Manufacturers-to-Business, Traditional Wholesale Markets and Retail Multiples (APPENDIX B). Modern grocery retailers not only eclipse C&C winning the price war, due to its higher bargaining power, but also shrink further the size of small retailers, reducing C&C's customer base. The privileged location of modern grocery retailers, the rise of online channels represents a more convenient solution for many businesses to buy and pick promotions (Euromonitor International, 2010). Along with modern grocery retailers, delivered wholesalers represent a good substitute for C&C's customers. Independent businesses are less likely to have their own transport, the demand for greater convenience is leading more customers to delivered wholesalers rather than Cash and Carries (APPENDIX C). The same happens with the rising demand for product in need of transportation under cold chain requirements.

High Real Estate costs and large formats force Cash & Carry store to operate outside of city limits, while their clients are located in the city centers (PWC Global, 2014). Faced with industry pressures, Cash and Carry operators provide a more segmented approach targeting specific individuals with customized solutions, products, services and promotions. However, they have been struggling to find a point of differentiation. Is the Cash and Carry format an obsolete business model? What has been Cash and Carry players' latest plans? To overcome these challenges and changes most C&C's have been innovating and reviewing its go-to-market strategy (PWC Global, 2014). Cash and Carries started investing in transportation solutions, internet retail, financing, segmented customer approach, franchising, expand scope of symbol groups, smaller format stores, and market consolidation (APPENDIX D and E).

In Portugal, the major C&C player is Recheio, with 50% market share, but nevertheless it has been facing the same challenges as other C&C worldwide.

As it happens in developed markets, such as Germany and the UK, in Portugal the market share of traditional retailers is just 16% of the food retail market, and it has a negative growth perspective. The seemingly relentless rise of modern grocery retailers represents a major threat for small independent retailers. Traditional grocery retailers are unable to offer such wide assortment [of products] at competitive prices (Euromonitor International, 2015). The Portuguese market was no exception to the Global Challenges of the Cash and Carry business model. The increasing power of modern retailers and delivered wholesalers solutions constitutes a threat to the C&C players, including Recheio. Along with other strategic decisions, as Private Labels, Integrated retail chains (Amanhecer), Recheio has, naturally, started to respond to its client's needs, introducing a distribution fleet for deliveries in each store.

One of the major strategies adopted by Recheio to face its challenges has been direct deliveries (distribution) to its clients. Distribution sales accounted for 38,5% of Recheio's total sales in

2015, the rise of this new key sales channel brought the need to review and optimize distribution's process, which was based on manual and obsolete processes. That being said, the aim and focus of this work project is to discuss why the Cash and Carry distribution should be reengineered and how should it be done. At a later stage, the ambition is to propose ways to optimize and to improve the efficiency of distribution operation. This project is about the real case of Cash and Carry's major player in the Portugal, Recheio Cash and Carry, and its need for reengineering the distribution system.

4. Literature Review

In order to build a more sustained study basis for further discussion, this section reflects a theoretical previous research related to the topics in study. Regarding global solutions for the Cash and Carry business model, sales through the distribution channel have been appointed, by Recheio's decisions makers, as being a key factor to face the market requirements. The sales' weight through this distribution channel is so relevant which turns it into a Core Process. Rudimentary and manual operations' processes in distribution revealed to be a weakness which raised the need to reassess the processes, in order to achieve a business process reengineering.

4.1 Reengineering

Reengineering is seen as a radical departure from the traditional management "fixes" of the past. In their most popular book, Michael Hammer and James Champy (1993) advocated that businesses should solve their problems by "starting over" (Chan, Peel, Chan, & Peel, 2008)(Hammer & Champy, 2006). It is also seen as cure for business problems in case of excess capacity, mature markets, global competition, soaring costs, and low profitability. Some companies have already embraced reengineering as a solution to solve those problems.(Chan et al, 2008) According to Hammer and Champy, reengineering is "tossing aside systems and

starting over. It involves going back to the beginning and inventing better way of doing work.", their formal definition is "the fundamental rethinking and radical redesign of business process to achieve dramatic improvements in critical, contemporary measures of performance." There are two main factors or reasons to reengineer: The first ones came from **external** pressures, i.e: issues regarding: customers; competitors; changing industry or market conditions; and governmental regulations/political pressures (Chan, 2008). I**nternal** reasons for reengineering are usually linked with: the need to improve technology or automate; the need to increase efficiency, the need to reduce costs; and also to define or redefine the strategic focus (Chan, 2008) (APPENDIX F and G).

Increasing efficiency, reducing costs, adapting to a new customers' need and facing aggressive competition are the top internal and external reasons to re-design Recheio's distribution operation. Customer service level along with cost reduction and efficiency increase are the main reasons for Recheio's reengineering, which according to (Chan, 2008) represent the topics most impacted by a reengineering process. The perspective of Hammer and Champy (1993) is to reintroduce major gains in reducing companies' "waste" in the organization, suggesting reexamination of every single process and a rebuilding of the business (Attaran, 2004).

Business Process Reengineering represents a strategic action that requires a clear understanding of costumers, market, industry and competitive directions (Attaran, 2004).

The business process reengineering of the Recheio's distribution is also connected with warehousing, warehouse location, the centralization or decentralization of the operations and also the information flow involved. Warehousing is appointed as a key logistic and distribution activity, having a great contribution to deliver the right product, in the right time at a minimum cost. The warehouse processes represent the flow of the items inside the warehouse: receiving; storage, order picking and shipping (Rouwenhorst et al, 2000).

4.2 Order Picking

Order picking involves the process of retrieving products from storage (or buffer areas) in response to a specific customer request (De Koster et al, 2007). It is estimated that, on average, order-picking accounts for 55% of total warehouse costs. Improving its efficiency plays a vital role to reduce supply chain costs and improve warehouse's productivity (Bartholdi & Hackman, 2014). Besides, an enormous pressure is being made on warehouse managers to minimize the total distance travelled by the order pickers, reducing operational expenses, travelling accounts for 55% of the time spend in picking operations (APPENDIX H). A Warehouse Management System (WMS) is software which checks the inventory availability of ordered products. Orders are converted into picking-lines, which represent the instructions for order pickers. The pick-lines can be single or multiple lines depending on the number of locations to be visited. Once the pick-lines are created, the WMS may sequence them to reduce the travel time. Next, pick lists will be created which consist in order-lines. Different means can be used for organizing the pick list. For example, printed sheet of papers, radio frequency or voice transmission. The next step is either strict-order, batch or split of orders. They depend on the capacity of pick carts and number of order-lines. Once batching and splitting of orders completed, humans or automated equipment may be used to pick the requested orders. In order to increase the service level, checking of customer orders is crucial. Finally, consolidation of orders will be carried out and then products will be shipped to the next destination. The design of order picking systems is often complicated, because it encompasses a wide range of internal and external factors (Faber, De Koster, & Smidts, 2013).

4.3 Performance Measurement and Information Control

A logistic system should take in account two key factors: the **costs** and the **desired performance** (Carvalho, 2002). It is important to understand that if none of these two factors is measurable, there will be a poor logistic management.

Nowadays, logistics is about information movement as it is about product movement. According to Fernie and Sparks, anyone who believes that retail logistics is all about boxes and lorries needs to rethink their concept. Of course, it remains true that products have to be distributed. Vehicles and boxes are still involved. But increasingly it is the control of data and information that remains the key to a successful logistics system (Fernie & Sparks, 2009).

IT can be a key tool to the BPR (Business Process Reengineering) implementation. 40% of the companies which implemented a BPR revealed that although the major motivator was not Technology, the main result ended up being an automatization of procedures and technological improvements (Chan, 2008).

Performance evaluation provides the necessary feedback to understand the operational design and more important it shows on where to improve the operation (Gu, Goetschalckx, & McGinnis, 2010). Performance measurement can be similar to measure costumer service, used measurements must reflect key services (Rushton, Baker, & Croucher, 2010). Management and measurement cannot be separated, measures are used to identify deviations from the expected result, providing a base for continuous improvement and a support for decision making (Lebas, 1995). The lack of these measures significantly affects management in a supply chain environment (Sambasivan, Nandan, & Mohamed, 2009).

4.4 Centralization vs Decentralization

The term centralized indicates that authority to make important decisions lies towards the "head" or centre of an organization, while conversely decentralization implies more autonomy, whereby authority is vested in those further removed from the centre (Cummings, 1995).

An important aspect to take into account is supply chain upstream (input) and the downstream (output). On one hand, looking to the former, a centralized approach will lead to quantity discounts, cost reduction of supply chain operations and stock reductions. From this perspective, it is beneficial to have a central structure. However, looking with an output standpoint, it is hard to keep an acceptable service level with an accurate and flexible response. Despite leading to better decisions, a centralized approach usually separates those decisions from local problems (Carvalho, 2002).

A decentralized distribution channel increases responsibilities and promotes a higher involvement from unit managers, leading to better incentives and motivation towards the business. On the other hand, it leads to duplicated activities, multiple purchasing mechanisms, and a higher level of stock. Decentralization encourages asymmetric competences foremost to a different performance levels.

The benefits of one are usually the disadvantages of the other. A Centralized approach allows taking advantage of risk pooling which in general this means a lower safety stock. Economies of scale within the operation and fleet management represent the major advantages. Moreover, it represents, an increase in negotiation power and operational discounts for central supplies. However, a centralized system also has a down point. There is a high investment value, a higher dependency on big suppliers, and a higher probability of having a product loss due to climacteric conditions or catastrophe.

Supply chain operations can be either centralized, decentralized or both at a time. Fernie (1990) considers that it is not only about the centralization or decentralization of the supply chain, but

to an optimization of all the logistic process. A mixed system seems to be the best option as it has the benefits not only from agility and fast response, but also from scale economies, without huge transportation costs. Nowadays there is a general trend to adopt this hybrid philosophy.

5. Methodology

This section will provide an overview of the followed methodology during this work project. According to Yin there are several strategies of doing social science research, including experiments, surveys, history, archival analysis and case studies. Each should be applied according to three different criteria: type of **research question**; the **control** the investigator has over the events; and the **focus on contemporary events** (Yin, 1989) (APPENDIX I). Considering the "why" and "how" questions about contemporary events, and researcher's little control over events, the best way to serve this work project is through a case study research strategy. On top of this, this type of approach it is considered very suitable in early phases of a topic. Considering the exploratory nature of the project (Eisenhardt, 1989), methodological questions and sub-questions represent the starting point of this case, supporting Recheio's approach for re-think its distribution channel.

The following methodology was used to clarify the three main questions of this research project:

1. Why is Recheio facing the need to review and redesign its distribution process?
2. What are the processes to be redesigned?
3. What are the implementation processes and what steps and changes should be faced?

In order to structure the reengineering process, a six-step approach methodology guided the actions of this research, from understanding the business' needs, goals and objectives through to the process review. This Business Process Reengineering methodology proposed by Groznik

& Maslaric aims to turn an AS-IS base case into a TO-BE scenario (Groznik & Maslaric, 2012) (APPENDIX J).

5.1 Understanding business needs, goals and objectives

The case and field study uses both quantitative and qualitative approaches in order to help the researcher understanding the phenomena being studied and the complexity of the process. (Meredith, 1998) Along with the technical aspects of this research, including an extensive literature review in retail industry, warehouse operations and order-picking, the business and operational *know-how* represented an indispensable factor. It was crucial to get familiar with Recheio's operations and culture, this B2B business has a very particular character. During this first step approach, the contact with strategic decision makers and influencers allowed the researcher to understand business drivers and objectives. Along with this strategic vision, a global research of Cash and Carry's main challenges (Euromonitor International, 2010) and (PWC Global, 2014) and an understanding of Portuguese market trends and client needs, through market studies (Galileo - Global Branding Group, 2015) revealed to be valuable insights for future challenges that Recheio may face and possible best practices to apply.

Lastly, the unstructured interviews allowed the researcher to understand the extension and complexity of the distribution system. A distribution system covers topics from Warehouse Management, Integration Systems, Infrastructure Size and Layout, Assortment Analysis, Financial Analysis, Fleet Size, Order-Picking, and any other activity related with product and information flows between Recheio and its clients.

In fact, due to the complexity and extension of the process, that was point where the researcher had to narrow his scope. Focusing on the process architecture and its main dangerous areas. This work project will focus on HoReCa clients, which represent the costumer segment with higher specifications, due to its business nature. There are time constraints, a lot of perishable

products, need a customized service and small/average daily purchases. In terms of operation, this mean: agility, high efficiency, multiple delivery locations, early deliveries in the morning and no stock-outs. Adding to that, this segment is the one with the shiniest growth perspective. Along with this scope narrowing, some assumptions were made, to contribute with relevant insights and useful recommendations.

5.2 Collecting Data and Establishing the AS-IS Base Case

The process of collecting data started with a qualitative approach where the researcher played a participant observation role. This is a method in which a researcher takes part in the daily activities, rituals, interactions, and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and culture. This field observation obtained through an internship, (Saunders, Lewis, & Thornhill, 2009; Yin, 2009) provided great insights about Recheio's culture, client habits and distribution process design and architecture. Due to the exploratory nature of the study, while playing the participant observation role, the researcher took field notes (Eisenhhardt, 1989) during the visit of 14 Recheio stores and 26 Recheio client's stores. Both unstructured and semi-structured interviews were made to understanding both front and back-office processes and procedures.

In this phase a both descriptive process overview and financial cost analysis of the base model were conducted. Along with the quantitative and qualitative analysis the in-field observation contributed with crucial data while mapping and construction the AS-IS base case. Due to a lack of performance and measurement tools and the variability of each task times due to order and client specifications, a qualitative approach was followed. The use of qualitative research methods is of great value when the researcher is unsure of the precise nature of the problem, in this case unable to quantify the inefficiencies in the distribution process (Meredith, 1998).

A structured base interview with the Operations Directors, Distribution Responsible, Pickers, Store Managers was key to understand the main inefficient points of distribution process. The structure encompassed the main phases of the processes from the client's order to product delivery. The interview had 38 questions, 2 of them represented verification question (the same question asked twice to understand interviewee consistency). The answer sheet had a scale from 1 to 6, forcing the interviewee to take a part whether agreed or not with the sentence. During this phase 49 interviews were conducted (APPENDIX K).

Before the interview takes place, the researcher briefed the interviewee to the aim of it, identifying the main bottlenecks of the process.

During this period distribution data was collected from: sales volumes: distribution growth: number of units per order; the number of FTE's and fleet allocated to each store; number of deliveries per day; number of clients; an assortment analysis; and some other relevant data.

After mapping the As-Is base case, and having in mind the collected information by then a

Two picking tests were conducted, to measure and identify the time spent in each activity during the picking itself.

5.3 To-Be Process and the future state of distribution process

In the fourth and fifth stage, a solution was proposed for the identified inefficient tasks. Those inefficient tasks were further studied and better observed, some even lead to measurement needs.

5.4 Review Process

The process review is the beginning of a new business process reengineering but this time with performance measurement tools. The aim of this stage is to create a never-ending improvement cycle to the distribution process (Groznik & Maslaric, 2012) (APPENDIX J).

6. Jerónimo Martins and Recheio Cash and Carry

Jerónimo Martins is a Portuguese group with assets in the food sector, most of its business is in food distribution. The Group is the largest retailer in Portugal (Pingo Doce e Recheio) and Poland (Biedronka), and it also operates in Colombia (Ara). The group accounts 3.249 stores and an annual sales volume of 14.6 million euros, in 31st December of 2016.

In Portugal, there are two operating formats: Pingo Doce in the supermarket format, with 413 stores and 3.558 million euros of sales and Recheio in the cash and carry format with 42 stores and 878 million euros of sales.

Recheio with 50% market share is the leader in the cash and carry, followed by Makro (20%). There are some smaller players like Uniarme, Grula, Alicoop and another smaller C&C. Among these Cash & Carries, Recheio is the only one with national presence, as well as a perishables section that represents a differentiation factor from its competitors (APPENDIX L).

Recheio was founded in Figueira da Foz in 1972 and introduced the concept of self-service wholesaling to small and mid-sized trade professionals. In 1988, as part of its diversification strategy, Jerónimo Martins acquired a 60% share of Recheio. As result of this acquisition, Recheio integrated JM's supply chain, however some suppliers remained with local deliveries. This B2B business is based on reliance and trust, clients want a customized service and the best raw materials and goods for their establishments. For instance, these clients are rather partners than simply costumers. This relationship between Recheio's staff and its clients crates a familiar atmosphere, where they know and call each other by name. This culture represents a key success factor in this business, favoring an environment for negotiation. Despite the increase in distribution, this relationship as well as business opportunities continue to ensure that clients visit the stores, including those with distribution agreements.

Costumers can be classified by their commercial activity, HoReCa (38%, Hotels, Restaurants and Cafes), Traditional grocery stores (38%) and others (24%, institutions and other wholesalers), this data was provided by Recheio.

There is a high percentage of aged clients in Recheio, with reduced schooling level and consequently low technology literacy. Whether being a grocery store or a restaurant, clients usually own and run a family business. Home-delivery tends to be a growing required service among all client groups. Regarding delivery preferences restaurants prefer to receive the products early in the morning in order to have fresh goods to prepare lunch and dinner. Moreover, these moments represent their peak of activity, meaning that their resources should be concentrated in serving their clients. Service is an important variable, and the owners do not have availability to go shopping on daily basis. A stock-out can have a huge impact in restaurant's menu. The actual distribution process is very agile and can resist to stress with an additional effort of distribution teams and often using additional help of other staff members. Agility is useful in cases where clients need an urgent and/or unexpected delivery. ("Recheio Cash & Carry - Distribuição | Negócios Jerónimo Martins," 2016)

7. Process AS-IS

By the end of 2015 Recheio had 116 people and 79 trucks allocated for distribution purposes that accounted for 38,5% of total sales. During the past years, Recheio's sales through the distribution channel grew 43% in five years (2010-2015). Since 2010, distribution sales have been increasing 5.5 pp on top of Recheio's total sales (APPENDIX M). The continued growth of home distribution sales raised an urgent need to look at the distribution process.

The actual process is based in each Recheio store, with a dedicated fleet for home delivery purposes. The vehicles allocated to each store are either rented or owned, however the transport operations are made by a third party logistic (3PL). Distribution is available in 31 stores, with

a total of 4.343 clients. The number of trucks and human resources for distribution is proportional to the amount of sales through this channel. Store Managers dedicate a considered slice of their time for distribution purposes by: optimizing routes, maximizing capacity, and calling clients due to stock-outs or product substitutions.

Regarding picking activities, they are made inside each store, at the same time clients are shopping and a dedicated team is replenishing products on the shelves.

It is usual to have unplanned orders, and the size of the client (total purchase volume) and the urgency in receiving the products helps ranking priority instead of having a uniform treatment. Order executions are planed manually, as many other tasks in this process. The know-how is crucial to an execution with success. Picking Operators should have a profound knowledge about products' location and clients' purchasing habits. Finally, in this complex process, there are many people involved, including the distribution team and truck drivers, but also, perishable operators, store managers, deputy store managers and even administrative staff. Which also takes part of the process, due to debt issues, credit/debit notes and devolutions.

7.1 The Process Architecture

Each store receives and manages delivery orders as a separate unit. Orders are received either by phone, fax, email, from sales force or by EDI (Electronic Data Interchange). Amanhecer partners already have a data interchange system with Recheio. The picking map is usually the format the order comes in, a hand-write paper can be a picking map (APPENDIX N).

Usually the picker identifies the best products to form a base and start collecting products and placing in the car or pallet. If there are any perishable products, the picking team request the items in each specialized section. Fishmonger, Butchers and Fruits & Vegetables' operators, write down the order and delivery day. To have all products executed early in the morning of the expedition day. After being executed, the orders must be invoiced and put in a buffer period

while products are not shipped to clients, either in store warehouses, or in the check-out area. In the morning of delivery all orders are consolidated and loaded in the trucks. Routes are pre-defined, according to clients' restrictions, however extraordinary deliveries might happen, or clients with higher volumes than usual. This requires additional attention from store managers to rearrange routes and speed up the process. By the time products reach delivery address they are checked by the drivers and clients. If there was any picking mistake or any product to deliver, a credit note is emitted or a devolution note followed with the physical movement of the product. The architecture of the process is illustrated (APPENDIX O).

7.2 Actual process characteristics and further analysis

7.2.1 Assortment

According to Pareto's rule:20% of the items represent an impact of 80% in a determined characteristic. This understanding shows the great impact given by a few items, a special focus on those items will represent an increase the efficiency (Millstein, Yang, & Li, 2014). The business core is represented by a specific group of products, which need a special purchasing control, otherwise it could lead into a stock-out (Carvalho, 2002).

A common application of this tool is that a small number of references represent a large number of the sales volume or the quantity volume. Distribution products in Recheio have the same behavior, with 9,62% of products representing 80% of sales, the same happens with quantity with 4,43% of the products representing 80% of quantity sales (APPENDIX P).

7.2.2 Picking Analysis

The 1st Picking test was recorded, to assign, afterwards, the time spent in each task during this process. Real orders were taken in account and results show us that: 43% of the time was spent looking for products; 32% travelling in store; 15% was doing the picking itself and 10% writing down picked products. During this process the observer noticed: same route

travelled multiple times; discontinued products in the picking map; stock outs; products with stock in buffer zones; the need to open boxes (eg. Clients order 10 units and each box contains 12). According to this video analysis, 39% of the time spent in this picking process could have been avoided (APPENDIX Q).

During this phase a number of 75 orders were observed, recorded beginning and ending times, the number of items per order, stock-out products, and if it was from EDI or not. EDI performed much better in average times, the system emits a semi-ordered picking map (APPENDIX R).

The 2nd Picking test was carried out under some conditions: perishable products were not take into account; mapping the store by section (even having one section in more than one corridor); picker operator had a printed picking list sorted by product section and then by product code. From this list (APPENDIX S), discontinued products were withdrawn. The major outcomes of the process were 1,05 min/per line and 9% of stock-outs.

7.2.3 Information Systems

Recheio Cash and Carry operates in 2 different operating systems, Cobol to process invoices and SAP is responsible to manage in-store stocks the whole integration with supply chain.

8. Bottleneck and problem identifications

8.1 Recheio's Organizational Diagnosis

Recheio overshadowed its management structure with the aim of defining its strategy for the next few years. This diagnosis was made in 2015 to 71 managers, and gave some interesting results regarding distribution. This activity was considered Recheio's least adequate process to face upcoming challenges, with a 4.1 out of 10. The same managers when inquired about

"order picking", "picking" and "distribution management" presented a need for simplification and uniformization of these operational processes (APPENDIX T)

8.2 Galileo - Market Study

A market research was carried out by Galileo (Global Branding Group), this study accessed costumer preferences, daily purchases and service requests. Galileo (2014) compares Recheio to its major competitors, in this case, Makro and some modern retailers. This market study also provides an analysis of HoReCa market in Portugal and its preferences.

On average, 59% of purchases are directly delivered in the establishments. Cash & Carry is a transversal distribution channel for all categories representing at least ¼ of the purchases, however, their weight varies substantially according to the same (APPENDIX U).

While thinking about suppliers, Makro and Recheio are in top of mind. Recheio is considered as a supplier by 60% of the market, and 46% of the foodservice actually shop there on regular basis. Makro reveals to be a preferred supplier for this market, with 61% considering them as a supplier and 54% actually purchasing.

While choosing suppliers, the main reasons are products' quality, good prices and a wide assortment of products. Recheio has its major score in this last attribute, on the other hand, Makro is valued for its product's quality. Recheio was elected as preferred supplier by 19% of HoReCa clients.

Considering the Cash & Carry sector, Recheio has a better image than Makro in the eyes of the consumers, performing better in all accessed topics. Moreover, considering a Needs & Gaps matrix, Recheio performs best in wide assortment and product quality. The lower performers are represented by store proximity (location), delivery service and meeting delivery deadlines. As a key take away, Recheio has to improve its delivery on time and its product availability (APPENDIX V)

8.3 Interview Analysis

The selection process of the interviewees was based on employees that contacted daily with the distribution process, or a person who had a high hierarchic level or/and influence in the process design and course, including sellers, picking operators, truck drivers, operation directors, business analysts and category managers. The purpose of this questionnaire (APPENDIX X) was to identify the main bottlenecks in the process and the main unproductive areas of the distribution process, according to expertise in the field.

8.3.1 Client Habits

Direct and indirect interviews showed that clients do not follow distribution rules, and these habits provide a more complex and inefficient operation. A lead time shorter than 48h, an illogical way to place orders contribute negatively to the smooth running of distribution operation. Recheio has some predefined rules for distribution, however exceptions seem to be the rule in the distribution process and it may change from store to store. On top of that, additional small orders on the same delivery day do not contribute to an efficient operation. A low integration and low uniformization of information between clients and Recheio represent a major bottleneck in this operation (APPENDIX X).

8.3.2 Picking process

Picking is made inside the store distribution employees pick the product from the shelves at the same time as the clients which is not so convenient either for clients and neither for operators. In addition, usually due to the higher number of items in delivery orders the picking operation creates in-store stock-outs. Thus, generating a bad costumer experience to in-store clients. In addition, the need for letting down products, and the lack of uniformization on picking maps contribute to a higher picking time. The actual distribution model has a negative impact in operations inside store. Despite having a good connection between the picking team

and perishable sections, orders are usually executed with clients in-store adding an additional weight over perishable team during peak times (APPENDIX X).

8.3.3 Store Infrastructures

Despite having a warehouse format, stores are not adjusted for picking operations, and store's layout is not optimized, creating inefficiencies. In addition, the presence of clients a hinders picking operations. Moreover, stocks are designed to in-store volumes, the rising need to store products due to deliveries in the next day revealed that cold facilities and warehouses are not prepared. However, it is quite clear that distribution tools and pallet trucks are adequate (APPENDIX X).

8.3.4 Consolidation and Shipping

It is not usual to see forgotten perishable products, however a pallet without identification may be left in the store. However, staff members agree on well-defined routes and loading per delivery schedules. The reconditioning of the pallets appears to be the only weak factor during this process' stage (APPENDIX X).

8.3.5 Transportation and Delivery

Each store has its own route list, and despite being hand-made it seems to be optimized. Transportation and time spend by truck drivers to delivery products are just right according to staff members. Some comments reveal that additional trucks are needed to deliver orders of new clients. However, additional sales do not monetize the time truck is stationary. Meaning that this new orders do not justify investing in a new truck (APPENDIX X).

8.3.6 General Section

With daily contact with clients, store operators understand better that anyone the expanding demand for distribution services. It is clear to Recheio's managers that distribution will have an important role in the future of the company.

After analyzing the actual delivery process of Recheio Cash and Carry, the major inefficiencies of the process do not only have to do with the architecture of the process itself, but also due to extremely manual procedures and physical facilities where picking operations are conducted and a lack of collected data to analyze its performance (APPENDIX X).

9. Delivery Process: TO-BE and Recommendations

This reengineering proposal will provide an efficient and reliable delivery service to all Recheio customers (Retailers, Wholesalers and HoReCa). It addresses costumer's requirements, increases efficiency, reduces picking and delivery costs, and it provides available tools to measure it accurately the service level given to customers. There are 3 main recommendations to start this implementation, which are important to analyze and collect data for further decisions:

9.1 Online and Call-center

The permanent contact with clients is indispensable in the distribution market, some client's orders are hard to understand, not only because of calligraphy but also due to lack of specification of the pretended product (APPENDIX N). Looking at the specific case of Horeca clients, a stock-out may imply a change in its daily menu, or the need to buy elsewhere. A substitute product may be a good solution, but how do you inform clients? There is a need to build a dedicated call-center to manage orders and contact with clients, either to substitute the product or to let them know about stock-outs. Moreover, technologies are evolving, an era of

total integration and information will be the future, e-commerce also plays a big role in that integration. Recheio just launched its online store, which can be an alternative to the salesforce and substitute some call-center's tasks, in a future state. Online and Call-Center will play an important role in recording costumer's orders, standardizing the picking map, contacting with the client, optimizing salesforce's time taking orders, recording client's usual product requests, suggesting products, facilitating products substitutions, measuring service level, scheduling deliveries and increasing customization.

9.2 Dedicated Logistic Platform

Sales through the distribution channel have taken astronomical proportions in 2015. The operation and store customers are severely hampered. Store infrastructures can no longer afford a volume operation. It is necessary to create dedicated platforms for distribution, managed as a separate warehouse that seeks to overtake distribution customers. These semi-centralized platforms are designed to be agile and respond to a local need and at the same time benefiting from economies of scale, in relation to the picking operation and transportations. This model brings the end of stock-outs in-store caused by picking operations, and store managers can become fully dedicated to on store issues and interacting with clients instead of managing deliveries and solving fleet capacity problems.

9.3 Information Systems - WPMS

Information systems are intended to be interconnected and to exchange data to promote agility and integration of the logistics chain. Technologies support intra and inter-enterprise information flows, with ramifications in almost any organization. Adding to Online and Call-Center, WPMS a warehouse management system must be implemented to run and control warehouse operations. Jerónimo Martins has been running its central warehouses with WPMS

since 2000, there is a perfect integration with SAP, companies' structural system. The WPMS system is a typical Warehouse Physical Management System software that takes control of all activities that take place inside the warehouse, such as: controlling the entry and exit of vehicles, receiving goods, executing customer orders, the dispatch of vehicles and all movements of pallets or other containers with the support of an application that runs on any radio frequency mobile terminal and controls the activities carried out by warehouse operators using bar code scanning. Orders are received in SAP, and converted to work units, sent to the operators by warehouse managers. This system will avoid paper, major picking errors and forgotten pallets. Informatically speaking it will not be possible to load a pallet in the wrong truck, nor to send a truck without all the products planned.

After analyzing the main inefficiencies in the actual process (APPENDIX W), the new reengineered architecture solves the major problems of the first one (APPENDIX Y and Z).

10. Limitations and Future Challenges

Regarding the semi-structured and structured interviews there is a limitation given the fact of wide variety of reasons that might have impact in process' efficiency. Adding to that, the answer scale, from 1 to 6, does not imply a direct relation between the activity or fact and its efficiency in the distribution. Yet, it was not feasible neither pragmatic to cover the infinite reasons which might have impact in the process. Interview statements were based on unstructured conversation and the main observations of the researcher.

The observation method used to collect data, can only focus on observed events and , any unseen or unrelated fact is not contemplated in this work project. (Hair et al, 2015) The major difficulty was to collect representative data. Collected data represents a small sample of what it could have been if Recheio had control systems, a method to measure distribution costs and performance. In part, these limitations are justified by the industry and its complexity. If more

time was given to observing and measuring manually a significant number of different picking orders, more detail could have been specified in the whole process.

However, it is important to remember that reengineering is part of a continuous improving process (Groznik & Maslaric, 2012). The implementation of a new logistic model will represent a set of several milestones impacting multiple areas inside the company. From bureaucratic process like a simple water contract to the construction works in the warehouse or to shelves fulfillment. During this analysis, there were some crucial steps that were not further explored. Though, in order to understand a clear problem, identify its main inefficiencies and to contribute with a feasible solution the scope had to be narrowed. It was hard to dissociate order-picking and the architecture of the process from: warehouse locations (centroid method); assortment selection; Warehouse layout and size; information systems and parameterization; infrastructure planning; human resources; financial analysis; supply chain; and many other connections in distribution. This list of task represents future challenges to study in order to complete distribution's reengineering.

The reengineering proposed can encompass a huge change in C&C model, it is also important to take into account intervenient and clients' technical imparity and its usual resistance to change, which, due to the ambiguity of subject was not further explored.

11. Conclusion and Final Remarks

Firstly, Recheio is the main player in the Cash and Carry market in Portugal, this type of business model is facing many threats, mainly from modern retailers and delivered wholesalers. Secondly, a new demand for convenience is rising, it is clear that customers rather chose to go to modern retailers or receive products in their own establishment than travel to C&C stores, usually far from city centers. By understanding this clients' need and market trend, Recheio

can recognize the need for distribution by its clients, reinforced by the fact that 38,5% of revenues are already through this rising sales channel.

Thirdly, a distribution system based in each store, not only has a negative impact in store clients, but also has a negative impact in the normal running of the store. Store managers should focus their attention on sales rather than organizing a distribution operation. In-store picking operations, the ordering system and the picking seemed to be the main bottlenecks of this distribution process.

Fourthly, reengineering the logistic model of deliveries represents an implementation of information systems, customization and dedicated logistic platforms. Changes will contribute to a better customer service, a more efficient operation and a greater in-store shopping experience.

Finally, the new logistic model can even become a key tool to manage and support the most recent Recheio's investment, the e-commerce channel. However, as Chan (2008) concluded, IT development plays a key role in reengineering processes, a lot more is needed to invest in order to achieve the optimal home distribution to clients. Extensive steps have been taken in this direction.

12. References

Attaran, M. (2004). Exploring the relationship between information technology and business process reengineering. *Information and Management*, *41*(5), 585–596. http://doi.org/10.1016/S0378-7206(03)00098-3

Bartholdi, J. J., & Hackman, S. T. (2014). Warehouse & Distribution Science.

Carvalho, J. C. (2002). *Logística*. (M. Robalo, Ed.) (3ª). Lisbon.

Chan, P. S., Peel, D., Chan, P. S., & Peel, D. (2008). Causes and impact of reengineering.

Cummings, S. (1995). Centralization and decentralization: The neverending story of separation and betrayal. *Scandinavian Journal of Management*, *11*(2), 103–117. http://doi.org/10.1016/0956-5221(95)00002-D

Faber, N., De Koster, M. B. M., & Smidts, A. (2013). International Journal of Operations & Production Management Organizing warehouse management. *International Journal of Operations & Production Management International Journal of Physical Distribution & Logistics Management Sensor Review Facilities*, *3314*(13), 1230–1256. Retrieved from http://dx.doi.org/10.1108/IJOPM-12-2011-0471

Fernie, J. (1990). *Retail distribution management : a strategic guide to developments and trends*. *Kogan Page*. London: Kogan Page. Retrieved from http://trove.nla.gov.au/work/6460176?q&versionId=7450001

Fernie, J., & Sparks, L. (2009). Retail logistics: changes and challenges. *Logistics and Retail Management*, 3–37.

Galileo - Global Branding Group. (2015). *Galileo Food Service Agenda O roteiro do Relatório*.

Groznik, A., & Maslaric, M. (2012). A process approach to distribution channel re-engineering. *Journal of Enterprise Information Management*, *25*(2), 123–135. http://doi.org/10.1108/17410391211204383

Gu, J., Goetschalckx, M., & McGinnis, L. F. (2010). Research on warehouse design and performance evaluation: A comprehensive review. *European Journal of Operational Research*, *203*(3), 539–549. http://doi.org/10.1016/j.ejor.2009.07.031

Hair, J. F., Jr, Wolfinbarger, M., Money, A. H., Samouel, P., & Page, M. J. (2015). *Essentials of Business Research Methods*. Routledge. Retrieved from https://books.google.com/books?hl=en&lr=&id=GfnqBgAAQBAJ&pgis=1

Hammer, M., & Champy, J. (2006). REENGINEERING THE CORPORATION A Manifesto For Business Revolution.

International Euromonitor. (2010). Global Cash and Carry Channel – Wholesale Format With a Future?, (December).

International Euromonitor. (2015). Grocery Retailers in Portugal, (March). Retrieved from http://www.euromonitor.com/grocery-retailers-in-hong-kong-china/report

Koster, R. De, Le-duc, T., & Roodbergen, K. J. (2007). Design and control of warehouse order picking : a literature review Design and control of warehouse order picking : a literature review. *European Journal of Operational Research*, *182*(2), 481–501. http://doi.org/10.1016/j.ejor.2006.07.009

Lebas, M. J. (1995). Performance measurement and performance management. *International Journal of Production Economics*, *41*(1–3), 23–35. http://doi.org/10.1016/0925-5273(95)00081-X

Meredith, J. (1998). Building operations management theory through case and field research. *Journal of Operations Management*, *16*(4), 441–454. Retrieved from http://www.scopus.com/inward/record.url?eid=2-s2.0-0032119946&partnerID=40&md5=8986e208e4236f760f7087bee5f7cf25

Millstein, M. A., Yang, L., & Li, H. (2014). Optimizing ABC inventory grouping decisions. *International Journal of Production Economics*, *148*, 71–80.

http://doi.org/10.1016/j.ijpe.2013.11.007

PWC Global. (2014). PwC â€™s Global Insights 2014 - Drivers of growth for Cash and Carry retailers in emerging markets.

Recheio Cash & Carry - Distribuição | Negócios Jerónimo Martins. (n.d.). Retrieved April 27, 2016, from http://www.jeronimomartins.pt/negocios/distribui%25C3%25A7%25C3%25A3o-alimentar/recheio.aspx

Rouwenhorst, B., Reuter, B., Stockrahm, V., Houtum, G. J. van, Mantel, R. J., & Zijm, W. H. M. (2000). Warehouse design and control: Framework and literature review. *European Journal of Operational Research*, *122*(3), 515–533. http://doi.org/10.1016/S0377-2217(99)00020-X

Rushton, A., Baker, P., & Croucher, P. (2010). *LOGISTICS AND DISTRIBUTION MANAGEMENT* (4th ed.).

Sambasivan, M., Nandan, T., & Mohamed, Z. A. (2009). *Consolidation of performance measures in a supply chain environmentnull*. *Journal of Enterprise Information Management* (Vol. 22). http://doi.org/10.1108/17410390910999576

Yin, R. K. (1989). STUDY Design and Methods.